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Regulation No. 94 (Frontal collision)

Proposal for 03 series of amendments to Regulation No. 94 (Frontal collision)

Submitted by the expert from France as Chair of the Informal Working Group on Frontal Impact*

The text reproduced below was prepared by the expert from France, who is Chair of the informal Working Group (IWG) on Frontal Impact (FI). It introduces the modifications needed in UN Regulation No. 94 (Frontal Collision) as proposed by the experts of the IWG on FI. It supersedes ECE/TRANS/WP.29/GRSP/2014/22 and is based on an informal document GRSP-56-15-Rev.2 distributed during the fifty-sixth session of the Working Party on Passive Safety (GRSP). The modifications to the text of the UN Regulation are marked in bold for new or strikethrough for deleted characters.

* In accordance with the programme of work of the Inland Transport Committee for 2012–2016 (ECE/TRANS/224, para. 94 and ECE/TRANS/2012/12, programme activity 02.4), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

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I. Proposal

Paragraph 2.13. to 2.14., shall be deleted:

Paragraph 3.1., amend to read:

"3.1. The application for approval of a vehicle type with regard to the protection of the occupants of the front seats in the event of a frontal collision **(offset deformable barrier test)** shall be submitted by the vehicle manufacturer or by his duly accredited representative."

Paragraph 4.2., amend to read:

"4.2. …(at present ~~02~~ **03** corresponding to the ~~02~~ **03** series of amendments) …"

Paragraphs 5.1.2. to 5.1.3., shall be deleted:

Paragraph 5.2.1.2., amend to read:

"5.2.1.2. The ~~Neck~~ **Injury Criteria for the neck** (NIC) shall not exceed the values shown in Figures 1 and 2;[1]

…"

Paragraph 5.2.1.4., amend to read:

"5.2.1.4. The thorax compression criterion, (ThCC) shall not exceed ~~50~~ **42 mm**;"

Paragraph 5.2.2., amend to read:

"5.2.2. **Following the test the** residual steering wheel displacement, **when** measured at the centre of the steering wheel hub, shall not exceed 80 mm in the upwards vertical direction and 100 mm in the rearward horizontal direction."

Paragraphs 6.1.2. to 6.2.3., shall be deleted

Paragraph 7.1., amend to read:

"7.1. Any modification affecting the structure, the number of **front** seats, the interior trim or fittings, …:"

Paragraph 7.1.2.2., amend to read:

"7.1.2.2. If the modifications concern only the interior fittings, if the mass does not ~~differ~~ **increase** by more than 8 per cent …:"

Paragraph 11.9., amend to read:

"11.9. ~~Approvals of the vehicles to the 01 series of amendments to this Regulation which are not affected by the 02 series of amendments shall remain valid and Contracting Parties applying the Regulation shall continue to accept them.~~ **Contracting Parties applying the Regulation shall continue to accept approvals to the 01 series of amendments to this Regulation, for the vehicles which are not affected by the 02 series of amendments.**"

[1] Until 1 October 1998, the values obtained for the neck shall not be pass/fail criteria for the purposes of granting approval. The results obtained shall be recorded in the test report and be collected by the Type Approval Authority. After this date, the values specified in this paragraph shall apply as pass/fail criteria unless or until alternative values are adopted.

Insert new paragraphs 11.11. to 11.15., to read:

"**11.11.** **As from the official date of entry into force of the 03 series of amendments, no Contracting Party applying this Regulation shall refuse to grant UN approval under this Regulation as amended by the 03 series of amendments.**

11.12. **As from 1 September 2018, Contracting Parties applying this Regulation shall grant UN approvals only to those types of vehicle which comply with the requirements of this Regulation as amended by the 03 series of amendments.**

11.13. **Contracting Parties applying this UN Regulation shall not refuse to grant extensions of UN approvals for existing types which have been granted according to the preceding series of amendments to this UN Regulation.**

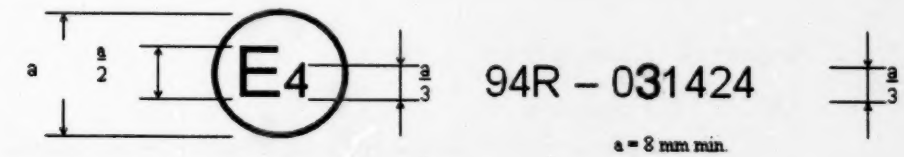
11.14. **Contracting Parties applying the Regulation shall continue to accept approvals to the 01 series of amendments to the Regulation, granted before 23 June 2013 or 2014, as foreseen in paragraph 11.5. above.**

11.15. **Contracting Parties applying the Regulation shall continue to accept approvals to the 02 series of amendments to the Regulation, granted before 1 September 2018."**

Annex 2, amend to read:

"Model A

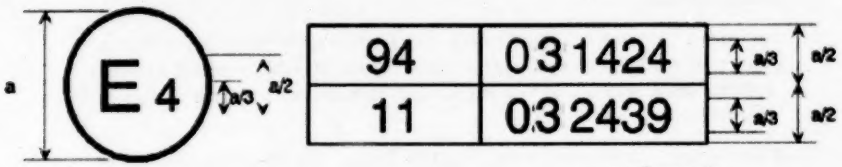
(See paragraph 4.4. of this Regulation)



The above approval mark … approval number 0231424. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 94 as amended by the ~~02~~ 03 series of amendments."

Model B

(See paragraph 4.5. of this Regulation)



a = 8 mm min.

~~The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in the Netherlands (E 4) pursuant to Regulations Nos. 94 and 11[1].~~ The first two digits of the approval numbers indicate that, at the dates when the respective approvals were granted, Regulation No. 94 incorporated the ~~02~~ **03** series of amendments and Regulation No. 11 incorporated the ~~02~~ **03** series of amendments."

Annex 3,

Paragraph 1.4.3.1., amend to read:

"1.4.3.1. Position of steering wheel

The steering wheel, if adjustable, shall be placed in the normal position indicated by the manufacturer or, ~~failing that~~ **in the absence of any particular recommendation by the manufacturer**, midway between ... of the vehicle."

Paragraph 1.4.3.3., amend to read:

"1.4.3.3. Gear-change lever

The gear-change lever shall be in the neutral position. **If the vehicle is propelled by its own engine, then the gear-change level shall be defined by the manufacturer**."

Paragraph 1.4.3.10., amend to read:

"1.4.3.10. Head restraints

Head restraints adjustable for height shall be in their ~~uppermost~~ **appropriate** position **as defined by the manufacturer. In the absence of any particular recommendation from the manufacturer, then the head restraints shall be in their uppermost position.**"

Paragraph 2.1.1. and footnote 1, amend to read:

"2.1.1. A dummy corresponding to the specifications for HYBRID III **fiftieth percentile male dummy**[1] fitted with a 45° ankle and meeting the

~~[1] The latter number is given only as an example.~~

[1] The technical specifications and detailed drawings of Hybrid III corresponding to the principal dimensions of a fiftieth percentile male of the United States of America, and the specifications for its adjustment for this test are deposited with the Secretary-General of the United Nations and may be

specifications for its adjustment shall be installed in each of the front outboard seats in accordance with the conditions set out in Annex 5. The ankle of the dummy shall be certified in accordance with the procedures in Annex 10."

Annex 4,

The title, amend to read:

"Head Performance Criterion (HPC) and 3 ms head acceleration Performance criteria"

Paragraphs 1. to 1.1., amend to read:

"1. Head Performance Criterion (**HPC_{36}**)

1.1. The Head Performance Criterion (**HPC_{36}**) is considered to be satisfied when, during the test, there is no contact between the head and any vehicle component."

Paragraphs 2. to 2.1., amend to read:

"2. ~~Neck~~ Injury Criteria for **neck**

2.1. These criteria are determined by the compressive axial force, the axial tensile force and the fore/aft shear forces at the head/neck interface, expressed in kN and measured according to paragraph 5.2.2. of Annex 3 and by the duration of these forces expressed in ms."

Annex 5,

Paragraph 2.4.3.2., amend to read:

"2.4.3.2. Pelvic angle
As determined using the pelvic angle gauge (GM) drawing 78051-532 incorporated by reference in Part 572, which is inserted into the "H" point gauging hole of the dummy, the angle measured from the horizontal on the 76.2 mm (3 inch) flat surface of the gauge shall be 22.5 degrees plus or minus 2.5 degrees."

Paragraph 2.6.1., amend to read:

"2.6.1. The right foot of the driver test dummy shall rest ... The longitudinal centreline of the left foot shall be placed as parallel as possible to the longitudinal centreline of the vehicle. **For vehicles equipped with a footrest, it shall be possible at the request of the manufacturer to place the left foot on the footrest. In this case the position of the left foot is defined by the footrest.**"

Paragraph 2.8., amend to read:

"2.8. The temperature of the dummy and the system of measuring instruments shall be stabilized before the test and maintained so far as possible within a range

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consulted on request at the secretariat of the Economic Commission for Europe, Palais des Nations, Geneva, Switzerland.

between 19 °C and 22.2 °C."

Paragraph 3., amend to read:

"3. **The dummy jacket shall be installed at the appropriate position where the bolt hole of the neck lower bracket and the work hole of the dummy jacket are at the same position. With the test dummy at its designated seating position, as specified by the appropriate requirements of paragraphs 2.1. to 2.6. and 3.1 to 3.6. above, place the belt around the test dummy and fasten the latch. Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor horizontally at a position via the centre of the dummy and allow it to retract. Repeat this operation four times. The shoulder belt should be at the position between the area which shall not be taken off from shoulder and shall not contact with the neck. The seat belt path shall be positioned: for HYBRID III fiftieth percentile male dummy, the hole of the outer side dummy jacket shall not be fully hidden by the seat belt. Apply a 9 to 18 N tension load to the lap belt. If the belt system is equipped with a tension-relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer for normal use in the owner's manual for the vehicle. If the belt system is not equipped with a tension-relieving device, allow the excess webbing in the shoulder belt to be retracted by the rewind force of the retractor.**

Where the safety belt and safety belt anchorages are located such that the belt does not lie as required above then the safety belt may be manually adjusted and retained by tape.

~~Adjustment of restraint system~~

~~With the test dummy at its designated seating position as specified by the appropriate requirements of paragraphs 2.1. through 2.6. above, place the belt around the test dummy and fasten the latch. Remove all slack from the lap belt. Pull the upper torso webbing out of the retractor and allow it to retract. Repeat this operation four times. Apply a 9 to 18 N tension load to the lap belt. If the belt system is equipped with a tension relieving device, introduce the maximum amount of slack into the upper torso belt that is recommended by the manufacturer for normal use in the owner's manual for the vehicle. If the belt system is not equipped with a tension relieving device, allow the excess webbing in the shoulder belt to be retracted by the retractive force of the retractor.~~"

Annex 8,

Paragraphs 4. to 4.3., shall be deleted.

Paragraphs 5. to 6., renumber as paragraphs 4. to 5.

II. Justification

1. In parallel with the introduction of a new regulation concerning frontal collision with focus on the restraint system, some amendments are needed in UN Regulation No. 94 to improve the protection of older occupants.

2. The text of UN Regulation No. 94 was aligned with the new UN Regulation on "Frontal impact with a focus on the restraint system".

3. Following decision of GRSP, the neck injury criteria remain unchanged in UN Regulation No. 94.

4. Following decision of GRSP, the references of the Hybrid III fiftieth male remain unchanged.